REMARKS

This is a full and timely response to the non-final Office Action of December 6, 2005. Reexamination, reconsideration, and allowance of the application and all presently pending claims are respectfully requested.

Upon entry of this Second Response, claims 1-26, 28-48, 52, and 53 are pending in this application. Claims 1, 10, 17, 18, 33, 41, and 42 are directly amended herein. Further, claims 49-51 are canceled without prejudice or disclaimer, and claims 52 and 53 are newly added. It is believed that the foregoing amendments add no new matter to the present application.

Response to §112 Rejections

Claims 49 and 50 presently stand rejected under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the written description requirement. However, claims 49 and 50 have been canceled herein making the 35 U.S.C. §112, first paragraph, rejections of these claims moot.

Claims 10, 17, 33, and 41 presently stand rejected under 35 U.S.C. §112, second paragraph, as allegedly failing to particularly point out and distinctly claim the subject matter, which Applicant regards as the invention. Claims 10, 17, 33, and 41 have been amended herein in order to clarify and better define the scope of these claims. Applicant respectfully asserts that claims 10, 17, 33, and 41, as amended, satisfy the requirements of 35 U.S.C. §112, second paragraph. Accordingly, Applicant respectfully requests that the 35 U.S.C. §112, second paragraph, rejections of claims 10, 17, 33, and 41 be withdrawn.

Response to §102 and §103 Rejections

A proper rejection of a claim under 35 U.S.C. §102 requires that a single prior art reference disclose each element of the claim. See, *e.g.*, *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 U.S.P.Q. 303, 313 (Fed. Cir. 1983). In addition, in order for a claim to be properly rejected under 35 U.S.C. §103, the combined teachings of the prior art references must suggest all features of the claimed invention to one of ordinary skill in the art. See, *e.g.*, *In Re Dow Chemical Co.*, 837 F.2d 469, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988), and *In re Keller*, 642 F.2d 413, 208 U.S.P.Q. 871, 881 (C.C.P.A. 1981). Moreover, "(t)he PTO has the burden under section 103 to establish a *prima facie* case of obviousness." *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988).

Claim 1

Claim 1 presently stands rejected under 35 U.S.C. §102 as allegedly being anticipated by *Hartman* (U.S. H780). Claim 1, as amended, reads as follows:

> 1. A spectral correlator, comprising:
> a specimen; and
> an optical device configured to collect ***light from the specimen*** and to optically determine a similarity of a received first spectra of the light collected from the first spectra and a second known spectra ***by directly comparing the light to a representation of the second known spectra.*** (Emphasis added).

Applicant respectfully asserts that *Hartman* fails to disclose at least the features of claim 1 highlighted above. Accordingly, the 35 U.S.C. §102 rejection of claim 1, as amended, is improper.

In this regard, in *Hartman*, the spectrometer 10 operates upon a specimen 12 to produce an output 14, which is an electronic representation of light spectra. This output 14 is then

transmitted to a modulator 16. See *Hartman*, column 2, lines 36, 37. The modulator 16 apparently uses the output 14 to modulate an optical signal from an appropriate light source, such as a laser diode, thereby forming an optical representation of the output 14. See *Hartman*, column 2, lines 37-38. This optical representation is defined by light, but such light is from the laser diode, not the specimen being analyzed. Thus, the light that is filtered by the matched filter 20 and is incident on the detector 22 is not "from the specimen," as recited by claim 1, and *Hartman*, therefore, fails to disclose an optical device that determines the similarity of a spectra of "light collected from the specimen... by ***directly*** comparing the light (from the specimen) to a representation of the second known spectra," as recited by claim 1. (Emphasis added).

In responding to Applicant's arguments in the First Response filed on September 6, 2005, it is asserted in the outstanding Office Action that:

> "Applicants argue that Hartman fails to disclose all the elements of claim 1, interpreting the correlator to compare an electronic output from the spectrometer to an electronic representation of the known spectra, and thereby not comparing light spectra from the sample to a representation of known spectra. Examiner disagrees and respectfully submits that the device of Hartman directly compares the light spectra from the sample to the representation on the filter. Hartman consistently refers to the output from the spectrometer as 'light spectra' (column 1 line 31, column 2 lines 19, 27, and 40) or 'optical spectra' (column 1 line 58), and says in column 2 lines 9-10, that a typical spectrometer produces an 'output in the ultraviolet, visible, and infrared', ***thereby illustrating that the spectrometer is outputting an optical signal.*** Additionally, Hartman consistently refers to the correlator as an 'optical correlator' (column 2 lines 16 and 25). Furthermore, the image from the filter is 'projected' on to a detector (column 2 lines 42-43O, indicating that light is what is being transmitted, not an electrical or electronic image. An electronic image would not need to be 'projected' onto a detector. Examiner contends that the invention of Hartman directly compares the light from the sample (via the spectrometer) to a representation of the second known spectra, and therefore meets all the limitations of claim 1." (Emphasis added).

Applicant agrees that the signal received by the detector 22 is an optical signal. However, Applicant respectfully disagrees with the assertion that the "spectrometer is outputting an optical signal." In this regard, *Hartman* refers to the output 14 as "light spectra" or "optical

spectra," but Applicant asserts that one of ordinary skill in the art, upon reading *Hartman* in its entirety, would realize that the use of such terms does not mean that the output 14 is an optical signal. Indeed, spectrometers are known devices for producing light spectra, yet the output of many such spectrometers is electronic, not optical. Moreover, references in *Hartman* to the output 14 as "light spectra" or "optical spectra" are insufficient for establishing that the output 14 is an optical signal.

In addition, the description in *Hartman* of the optical correlator 18 makes it clear that the output 14 is electronic, not optical. In this regard, the correlator 18 utilizes a modulator 16 in combination with a "laser diode as the light source." If the output 14 is optical, as alleged in the Office Action, then such a "light source" apparently would not be needed in the *Hartman* system. The very purpose of the modulator 16 is apparently to use the light from the laser diode to convert the output 14 from a non-optical representation to an optical representation that can then be projected onto the optical detector 22. In fact, *Hartman* specifically refers to the modulator 16 as an "image forming modulator." Column 2, lines 51-52. Accordingly, Applicant agrees that light is projected onto detector 22 in *Hartman*. However, such light is not "from the specimen" but rather is from the "laser diode" described at column 2, line 37. Thus, in *Hartman*, there is no "direct" comparison of "light from the specimen" to a representation of a "known spectra," as described by pending claim 1.

For at least the above reasons, Applicant respectfully asserts that *Hartman* fails to disclose each feature of claim 1, and the 35 U.S.C. §102 rejection of claim 1 should be withdrawn.

Claims 2-9, 11-16, 52, and 53

Claims 2 and 3 presently stand rejected in the Office Action under 35 U.S.C. §102 as allegedly being anticipated by *Hartman*. Further, claims 4-8 and 11-15 presently stand rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over *Hartman* in view of *Freyre* (U.S. Patent No. 5,987,188). In addition, claims 9 and 16 presently stand rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over *Barringer* (U.S. Patent No. 3,518,002) in view of *Hartman* and *Freyre*. Also, claims 52 and 53 have been newly added via the amendments set forth herein. Applicant submits that the pending dependent claims 2-9, 11-16, 52, and 53 contain all features of their respective independent claim 1. Since claim 1 should be allowed, as argued hereinabove, pending dependent claims 2-9, 11-16, 52, and 53should be allowed as a matter of law for at least this reason. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

Claim 18

Claim 18 presently stands rejected under 35 U.S.C. §103 as allegedly being unpatentable over *Hartman* in view of *Kuderer* (U.S. Patent No. 4,958,928). Claim 18, as amended, reads as follows:

> 18. A spectral correlator, comprising:
> a specimen;
> an illuminating device configured to illuminate the specimen; and
> ***an optical device configured to filter light from the specimen using an optical filter indicative of a known spectra*** and to determine, based on the filtered light, the similarity of a received spectra defined by the light and the known spectra. (Emphasis added).

For at least reasons similar to those set forth above in the arguments for allowance of claim 1, Applicant respectfully asserts that the output 14 in *Hartman* is an electrical representation of

spectra, and the modulator 16 converts this spectra into an optical representation. Accordingly, the light that is incident on the matched filter 20 is not "from the specimen." Further, *Kuderer* fails to remedy this deficiency of *Hartman*. Therefore, Applicant respectfully asserts that the alleged combination of *Hartman* and *Kuderer* fails to suggest at least "an optical device configured to filter ***light from the specimen***... using an optical filter indicative of a known spectra," as recited by claim 18. (Emphasis added).

For at least the above reasons, Applicant respectfully asserts that the cited art fails to suggest each feature of claim 18, as amended. Therefore, the 35 U.S.C. §103 rejection of claim 18 should be withdrawn.

Claims 19-26 and 28-32

Claims 19 and 20 presently stand rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over *Hartman* in view of *Kuderer*. Further, claims 21-25 and 28-31 presently stand rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over *Hartman* in view of *Kuderer* and in further view of *Freyre*. In addition, claims 26 and 32 presently stand rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over *Schnell* (U.S. Patent No. 4,620,284) in view of *Hartman*, *Kuderer*, and *Freyre*. Applicant submits that the pending dependent claims 19-26 and 28-32 contain all features of their respective independent claim 18. Since claim 18 should be allowed, as argued hereinabove, pending dependent claims 19-26 and 28-32 should be allowed as a matter of law for at least this reason. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

Claim 34

Claim 34 presently stands rejected under 35 U.S.C. §102 as allegedly being anticipated by *Hartman*. Claim 34, as amended, reads as follows:

> 34. A spectral correlator, comprising:
> a specimen;
> means for receiving ***light reflected off and/or emitted by the specimen***; and
> means for optically correlating the light received to determine the similarity of the spectra of the received light from the specimen and a second known spectra, ***the correlating means having an optical filter for filtering the light, the optical filter indicative of the second known spectra*** such that the filtered light has an intensity indicative of the degree to which the spectra of the received light and the second known spectra are similar. (Emphasis added).

For at least the reasons set forth above in the arguments for allowance of pending claim 18, Applicant respectfully asserts that *Hartman* fails to disclose an "optical filter" that is configured to filter light that is "reflected off and/or emitted by the specimen" and is "indicative of the second known spectra," as recited by claim 34. Accordingly, *Hartman* fails to disclose at least the features of claim 34 highlighted hereinabove, and Applicant requests that the 35 U.S.C. §102 rejection of claim 34 be withdrawn.

Claim 35

Claim 35 presently stands rejected under 35 U.S.C. §103 as allegedly being unpatentable over *Hartman* in view of *Freyre*. Claim 35 presently reads as follows:

35. A spectral correlation method, comprising the steps of:
receiving light from a specimen;
optically performing a first Fourier transform on a first spectra of the light as the light is passing through a first lens to obtain a transformed first spectra;
optically multiplying the transformed first spectra with a representation of a known spectra to obtain a similarity signal;
focusing, via a second lens, the similarity signal on a detector; and
providing an indication as to whether at least one substance is present in the specimen based on the similarity signal. (Emphasis added).

Applicant respectfully asserts that the combination of *Hartman* and *Freyre* fails to suggest at least the features of claim 35 highlighted above. Accordingly, the 35 U.S.C. §103 rejection of claim 35, as amended, is improper.

In this regard, *Hartman* fails to disclose performing a Fourier transform on any spectra. Further, *Freyre* appears to disclose performing a Fourier transform on a light beam. See column 1, lines 25-28. However, the light beam is not "from a specimen." In this regard, it appears that a "spatial modulator" in *Freyre* is used to impress an electronic image from a camera on a "coherent light beam" before the Fourier transformation. See column 1, lines 45-51. Clearly, an electronic image from a camera is not "light from a specimen," as described by claim 35. Further, there is nothing in *Freyre* to suggest that the "coherent light beam" is "from a specimen."

In addition, even if the optical correlator 18 of *Hartman* is replaced with the Van der Lugt type of optical correlator suggested by *Freyre*, as apparently alleged in the Office Action, the Van der Lugt optical correlator would apparently be receiving an electronic representation (*i.e.*, output 14 in *Hartman*) of spectra. Thus, even if such a modification is made to *Hartman*, a modulator, such as modulator 16 of *Hartman*, would apparently be used to convert the electronic output 14 into an optical signal. Thus, the optical signal correlated by the Van der Lugt correlator would not be "from a specimen" but rather would be from the light source used

by the foregoing modulator. Accordingly, *Hartman* and *Freyre*, alone or in combination, fail to suggest "optically performing a first Fourier transform on a first spectra of ***the light (from a specimen) as the light is passing through a first lens***," as described by claim 35. (Emphasis added).

For at least the above reasons, Applicant respectfully asserts that the cited art fails to suggest each feature of claim 35, and the 35 U.S.C. §103 rejection of claim 35 should, therefore, be withdrawn.

Claims 36-40

Claims 36, 37, and 39 presently stand rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over *Hartman* in view of *Freyre*. In addition, claim 38 presently stands rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over *Barringer* in view of *Hartman* and *Freyre*, and claims 40 presently stands rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over *Schnell* in view of *Hartman*, *Kuderer*, and *Freyre*. Applicant submits that the pending dependent claims 36-40 contain all features of their respective independent claim 35. Since claim 35 should be allowed, as argued hereinabove, pending dependent claims 36-40 should be allowed as a matter of law for at least this reason. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

Claim 42

Claim 42 presently stands rejected under 35 U.S.C. §103 as allegedly being unpatentable over *Hartman* in view of *Freyre*. Claim 42 presently reads as follows:

42. A spectral correlation method, comprising the steps of:
receiving light from a specimen;
separating a first spectra of the light into its component colors;
optically multiplying the separated first spectra with a representation of a known second spectra as the light is passing through an optical component indicative of the known second spectra to obtain an optical signal indicative of the degree to which the first spectra and the known second spectra are similar; and
detecting the optical signal. (Emphasis added).

For at least reasons similar to those set forth above in the arguments for allowance of claim 18, Applicant respectfully asserts that the alleged combination of *Hartman* and *Freyre* fails to suggest at least the features of claim 42 highlighted hereinabove. Accordingly, Applicant requests that the 35 U.S.C. §103 rejection of claim 42 be withdrawn.

Claims 43 and 44

Claims 43 and 44 presently stand rejected under 35 U.S.C. §103 as allegedly being unpatentable over *Hartman* in view of *Freyre*. Applicant submits that the pending dependent claims 43 and 44 contain all features of their respective independent claim 42. Since claim 42 should be allowed, as argued hereinabove, pending dependent claims 43 and 44 should be allowed as a matter of law for at least this reason. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

Claim 45

Claim 45 presently stands rejected under 35 U.S.C. §103 as allegedly being unpatentable over *Hartman* in view of *Freyre*. Claim 45 presently reads as follows:

45. A spectral correlation method, comprising the steps of:

receiving light from a specimen;

filtering the light with an optical filter indicative of a known spectra corresponding to at least one substance such that a spectra of the light is optically multiplied depending on a similarity between the spectra of the light and the known spectra;

determining whether the at least one substance is present in the specimen based on the filtered spectra; and

providing an indication as to whether the at least one substance is present in the specimen based on the determining step.

For at least reasons similar to those set forth above in the arguments for allowance of claim 18, Applicant respectfully asserts that the alleged combination of *Hartman* and *Freyre* fails to suggest at least the features of claim 45 highlighted hereinabove. Accordingly, Applicant requests that the 35 U.S.C. §103 rejection of claim 45 be withdrawn.

Claims 46-48

Claims 46-48 presently stand rejected under 35 U.S.C. §103 as allegedly being unpatentable over *Hartman* in view of *Freyre*. Applicant submits that the pending dependent claims 46-48 contain all features of their respective independent claim 45. Since claim 45 should be allowed, as argued hereinabove, pending dependent claims 46-48 should be allowed as a matter of law for at least this reason. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

CONCLUSION

Applicant respectfully requests that all outstanding objections and rejections be withdrawn and that this application and all presently pending claims be allowed to issue. If the Examiner has any questions or comments regarding Applicant's response, the Examiner is encouraged to telephone Applicant's undersigned counsel.

Respectfully submitted,

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